



Applications in Aerospace

21 August 2008

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Technical Director PMRF



BRIEF HISTORY OF BARKING SANDS

P A C I F I C M I S S I L E R A N G E F A C I L I T Y

1920s & 30s

Kauai's First Grass Airstrip

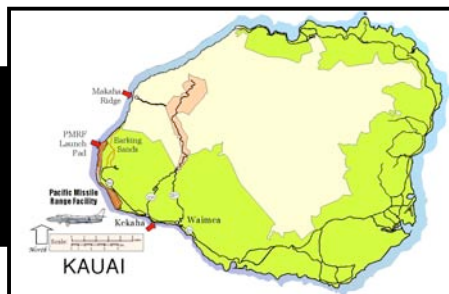


Southern Cross takes off on historic flight to Australia. Originating from Oakland Airport, San Francisco, the whole distance, was later calculated as 7,389 miles (11890 km), 83 hours and 11 minutes.

1940s

Mana Airport for Hawaiian and Pan American Airlines.

- WWII brought in the military presence
 - Heavy Military Traffic
 - Base population 6-8,000



1950s



Navy enters Joint Use Agreement with USAF (1956)

1960s



Bonham Air Force Base
- B26 Light Bombers

Significant expansion of mission, test sites, & capabilities

- Today's workforce (800+) consists of Military, Civil Service and Contractor



1970 to Present



Navy becomes principle user with Training and Test & Evaluation



PMRF – Alignment with CPF Vision

MISSION

**To provide integrated range services in a modern,
multi-threat, multi-dimensional environment,
assuring safe conduct and evaluation
of **Force Readiness Events****

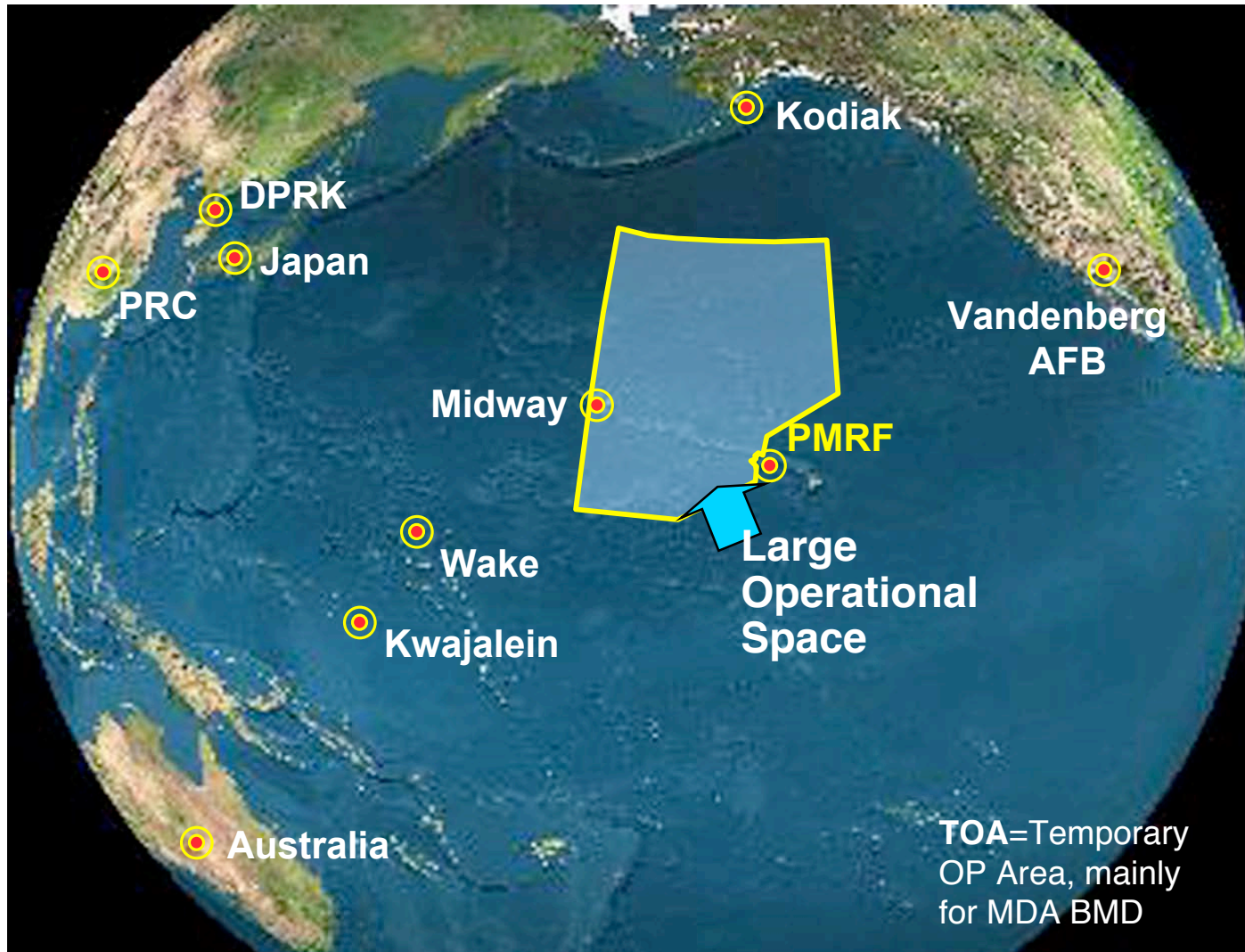
VISION

**Provide Premier Range services to meet present
and future Warfighting requirements with **clear**
and **measurable** benefits throughout the **Pacific
Theater****

**Today's Testing Leads to Tomorrow's
Training with Systems our Warfighters
Must Have to Win in Combat**

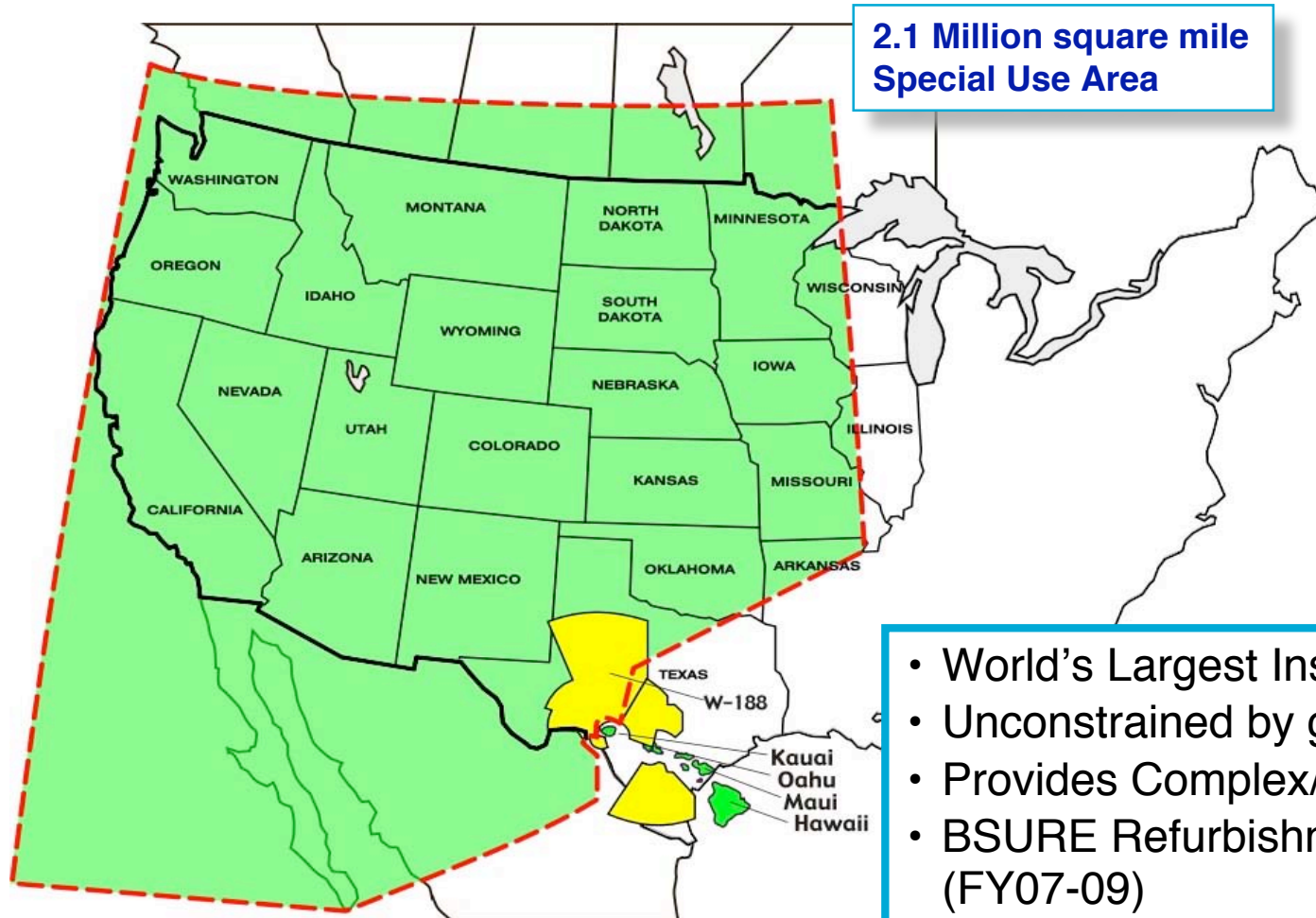


PMRF -Crossroad of the Pacific



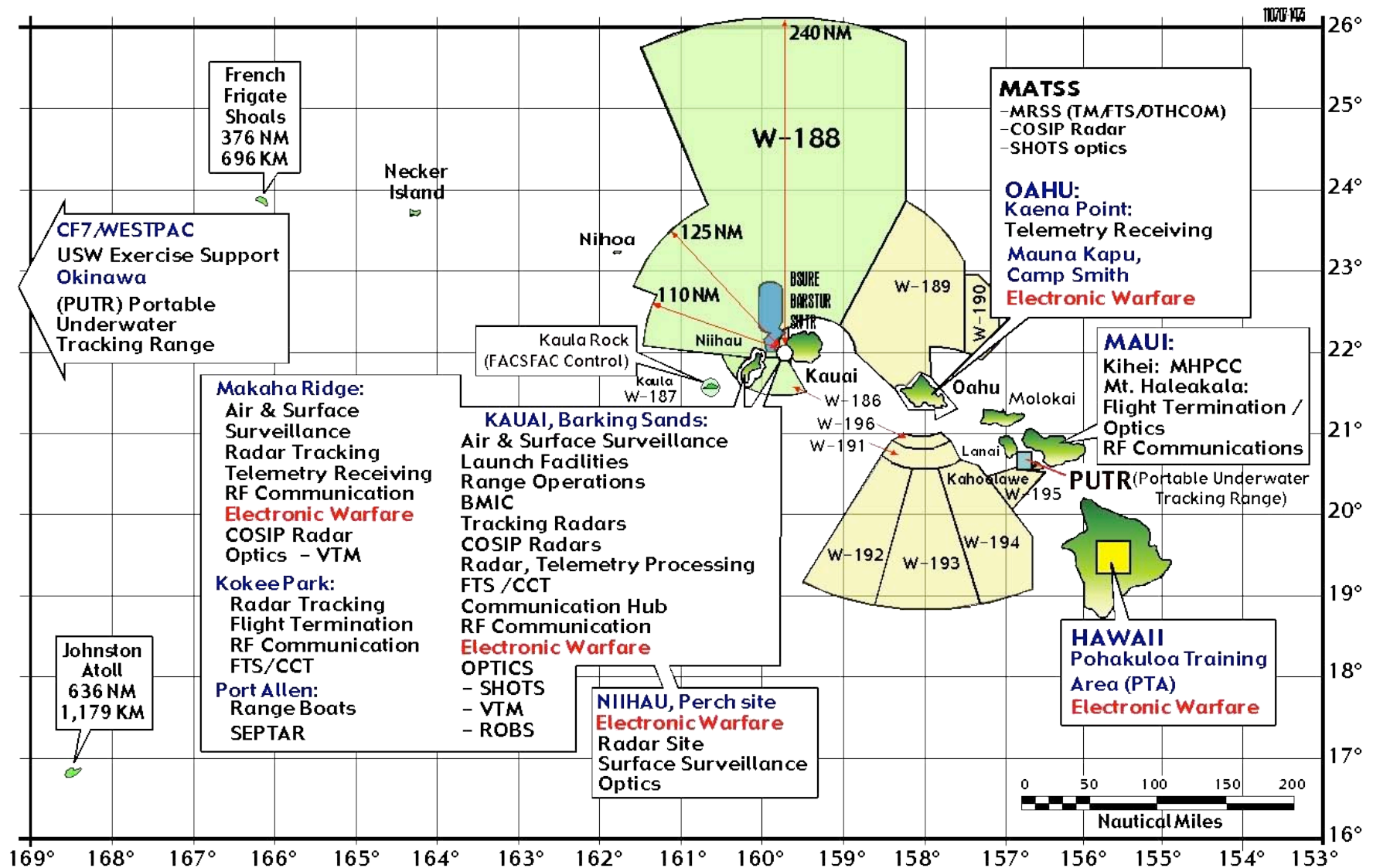


PMRF Provides a Multi-Dimensional Range Capabili





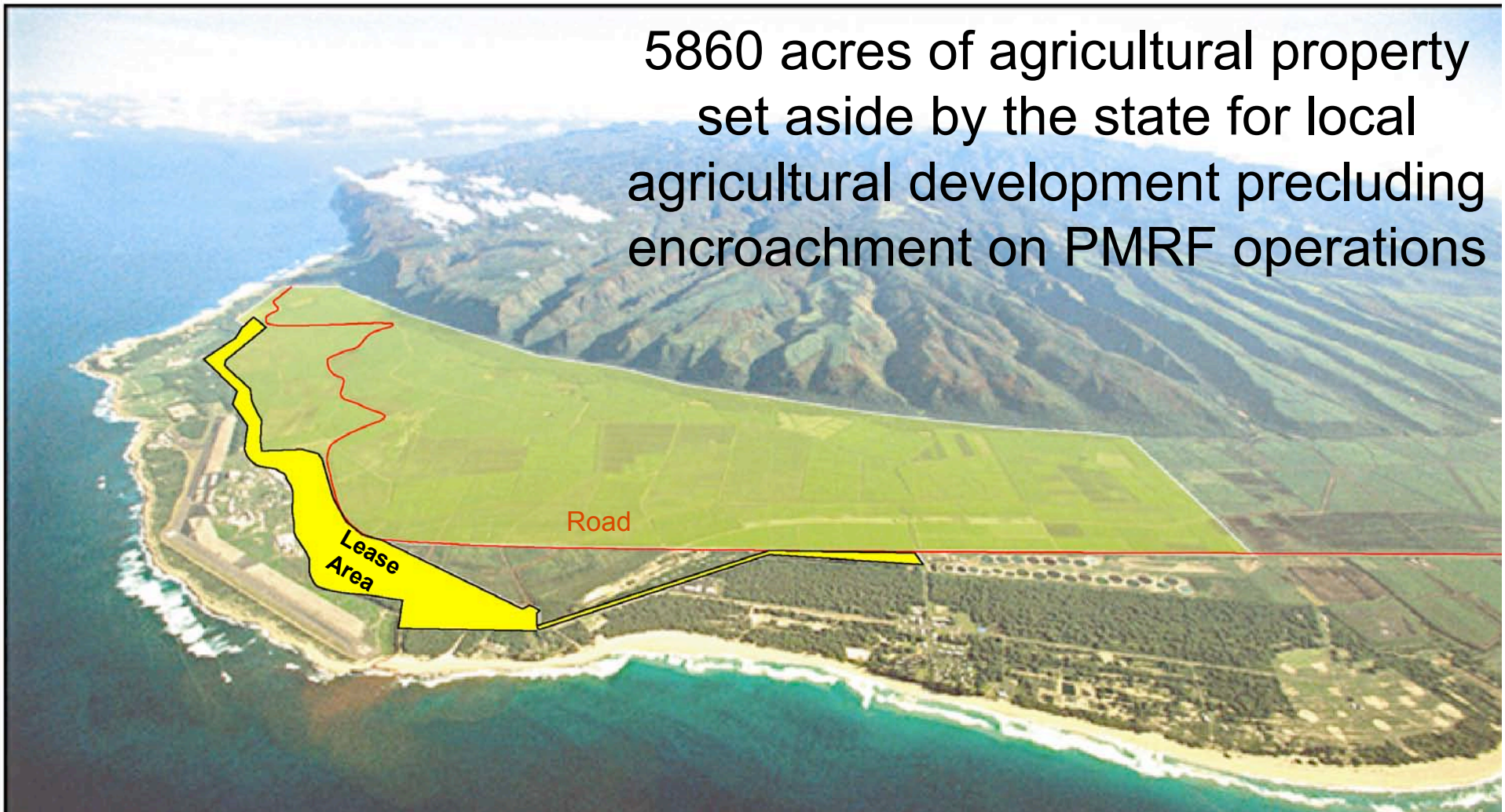
Hawaii Range Complex and WESTPAC Support





Agricultural Preservation Initiative (API)

5860 acres of agricultural property
set aside by the state for local
agricultural development precluding
encroachment on PMRF operations





PMRF RANGE COMPLEX



**MAKAHA
RIDGE**



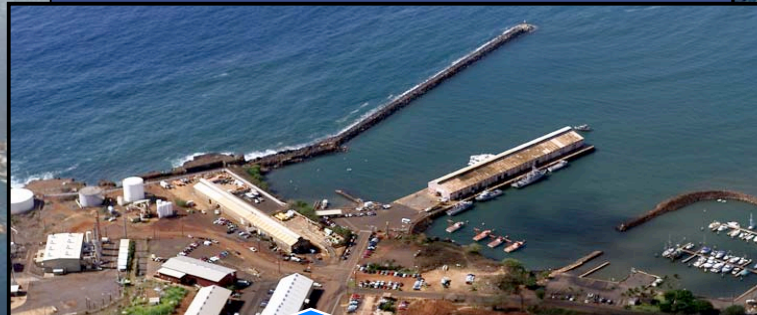
BARKING SANDS



KAMOKALA RIDGE



**NIIHAU
ISLAND**



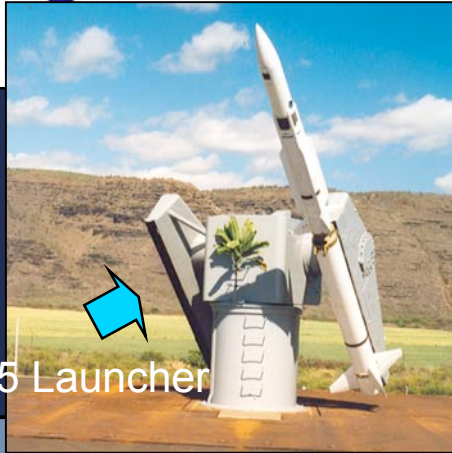
**PORT
ALLEN**

KOKEE PARK





PMRF / KTF Launch Capability



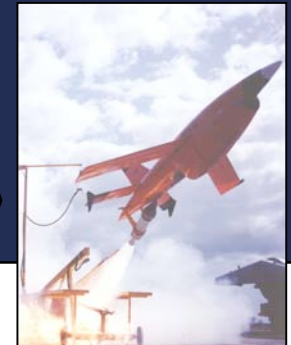
KAUAI TEST FACILITY (KTF)
Stool Launcher (1)
20k Launcher (2)



STARS



(3) BQM-34
Rail Launcher





Scout Launcher





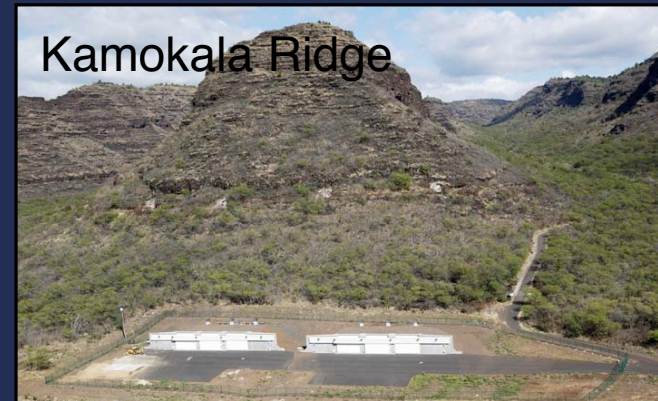
Ordnance Facilities



Kauai Test Facility



North Launch Complex



Kamokala Ridge



Red Label Area



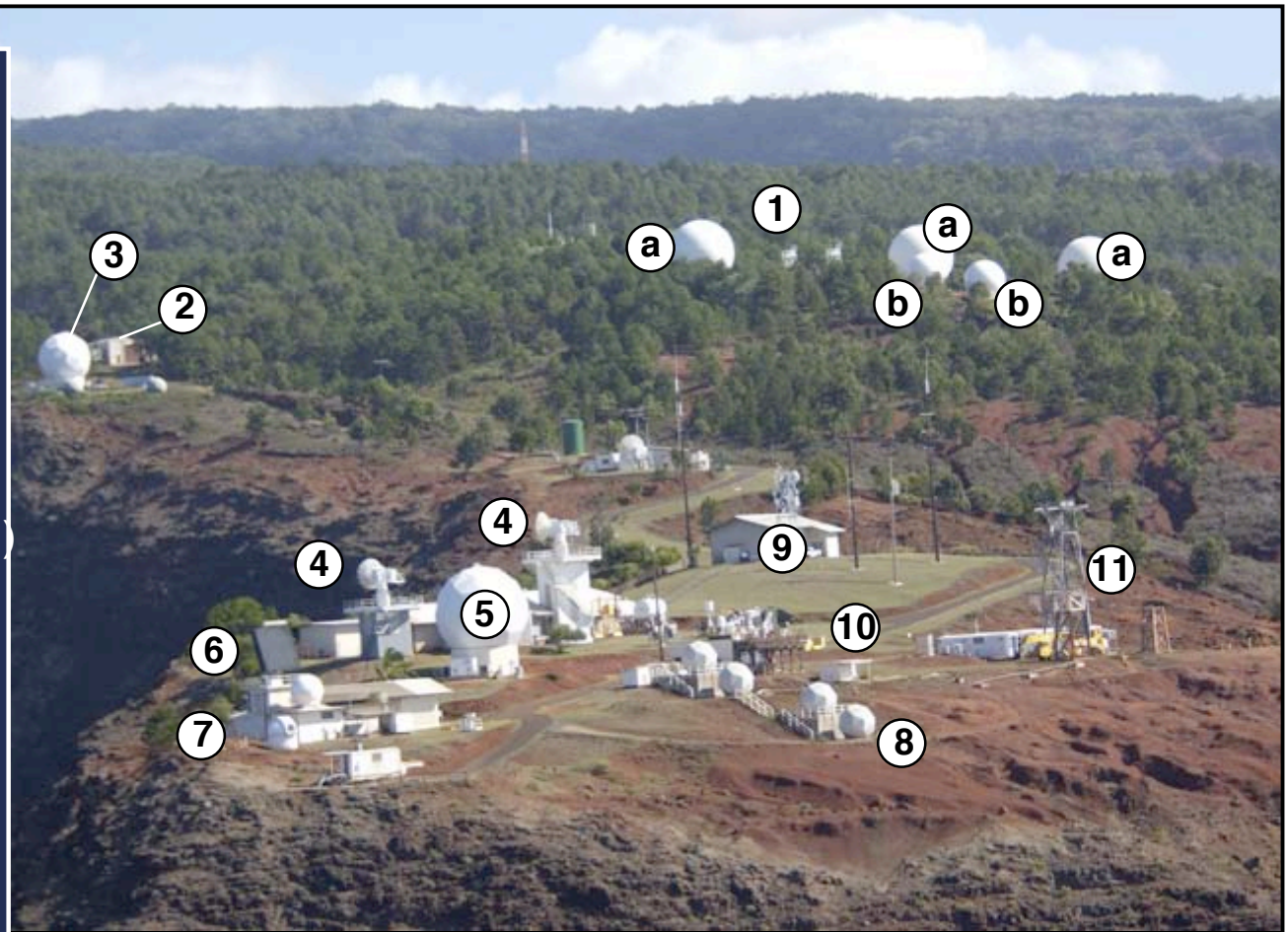
Missile Assembly Bldg. 590



Makaha Ridge

Surveillance,
Data Collection,
Electronic Warfare,
& Experimentation

- 1- Telemetry Bldg 752
 - a. KAM TM antennas
 - b. 150-20 TM antennas
- 2- Radar Maint. Bldg. 742
- 3- MPS-25 COSIP(Queen-4)
- 4- FPQ-10 (Queen 5&6)
- 5- MPS-25 COSIP (Queen-15)
- 6- SPS-48E Surveillance
- 7- APS-134 Surveillance
- 8- ITCS (BQM-34/74)
- 9- Comm. Bldg. 708
- 10- Electronic Warfare
- 11- ADS-18 UESA Project



Approximately seven nautical miles north of Barking Sands, Makaha Ridges overlooks the BARSTUR and BSURE ranges. Site elevations are between 1500 and 1700 feet, providing line-of-sight coverage to 60 nautical miles.



Kokee Park

Parcel "D"

- (1) FPS-16
- (1) MPS-25
- (2) 150-20' Telemetry Antenna



At an elevation above 3,800 feet, Kokee Park extends the line-of-site coverage from Kauai to 90 nautical miles.

Parcel "E"

NASA VLBI
USB Antenna



Parcel "B"

Power Plant
Substation



Parcel "A"

Mk-74 X-Band Radar &
future central fiber node



Parcel "C"

(4) CCT
UHF/VHF COMMUNICATIONS

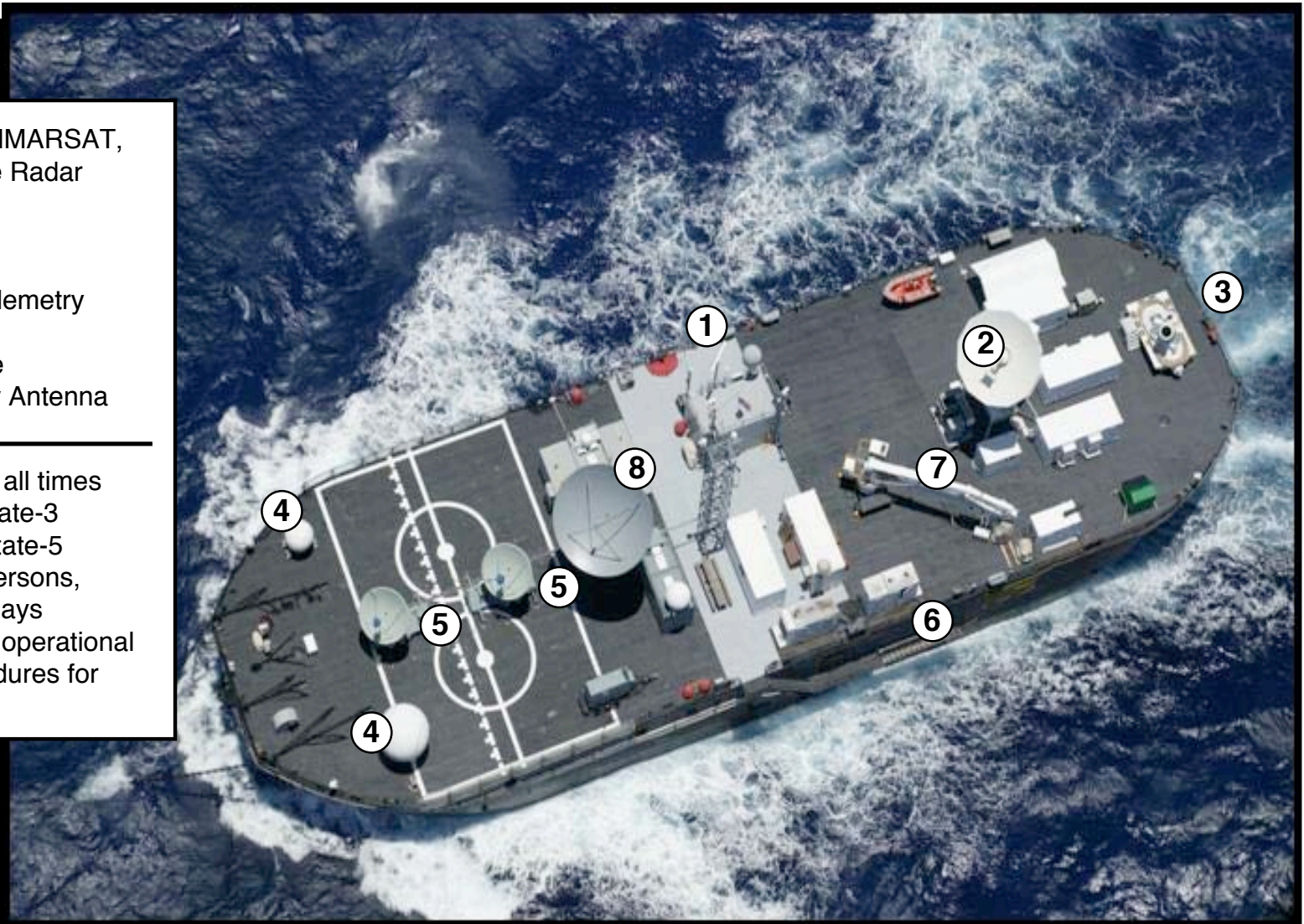




Mobile AT Sea Sensor (MATSS) Plan View

- 1- Deck House w/INMARSAT, Mini-M & Surface Radar
- 2- COSIP Radar
- 3- SHOTS Optics
- 4- C-Band VSAT
- 5- MRSS FTS & Telemetry
- 6- Generator
- 7- 65' Radius Crane
- 8- MRSS Telemetry Antenna

- Tended by tug at all times
- 8 knots in Sea State-3
- 6 Knots in Sea State-5
- Berthing for 36 persons, Duration of 21+ days
- Fully established operational and safety procedures for crew and riders





Summary

- **PMRF is a national asset that operates as an integrated test and training facility**
- **A major economic and civic contributor**
 - Majority of employees are Kaua'i families
 - Highly involved with local schools
- **An excellent steward of environmental and cultural treasures**
- **State support via the API has a significant impact on the growth of aerospace technology in Kauai**

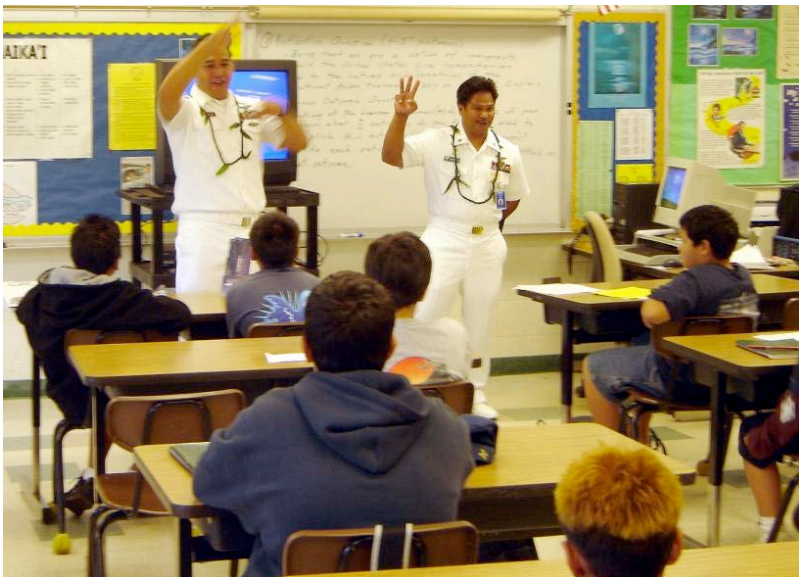


BACK UP SLIDES



Adopt A School, JVEF, and Aloha Ike

- Fully support Mayor, Team Tech Kaua'i's Adopt A School efforts
 - PMRF has adopted all schools on the island
- Joint Venture Education Funding
 - Formed JVEF partnerships with 5 local schools
- Active participant in Aloha Ike program promoting high tech educational opportunities for local students





Promoting Science in Local Schools

Friday, September 22, 2006

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PMRF showcased at Kauai children's science show

By MC2 (SW/AW) Johnny Michael

Several PMRF engineers took center stage during the recent third annual Kauai In Step children's science show, held at the Kauai War Memorial Convention Hall in Lihue.

Leland Tottori, Aubrey Kunishige and Nathan Momohara were called up on stage and presented to the assembled children as examples of how kids can do well in school, go to college and come back to Kauai to get a high-paying engineering job at PMRF.

The science show was held over the course of two days, and featured an exhibit hall with informative booths for children to visit as well as an exciting science presentation by General Atomics. The General Atomics show features scientists Rick Lee and Alex Nagy, who demonstrate scientific principles in a well orchestrated, fun routine.

The PMRF booth in the exhibit hall featured a looping video and was manned by Junior Professionals Candice Teshima and Justin Bran.



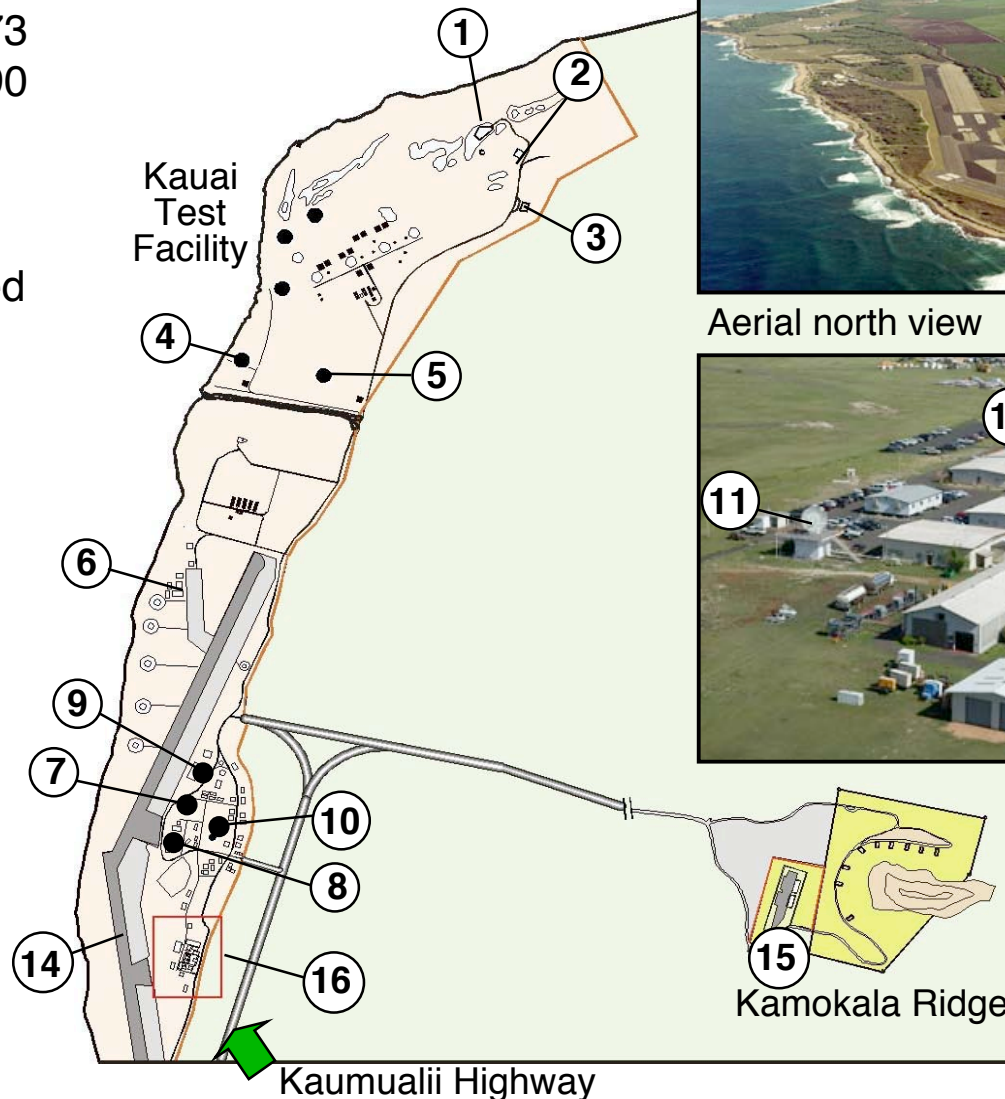
- Send local engineers as role models to schools and science shows
- Ongoing model rocketry partnerships with 4 schools
- Conduct 5-6 model rocketry events per year
- FIRST Robotics partnership with Waimea H.S. & expanding to others.





Instrumentation Barking Sands

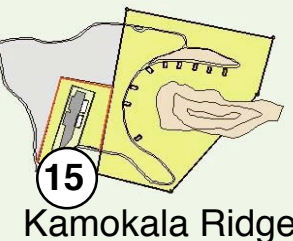
1. PMRF North Launch Complex
2. Missile Assembly Bldg. 573
3. Missile Assembly Bldg. 590
4. THAAD Launcher
5. THAAD Block House
6. Ordnance, Targets & Underwater Weapons (Red Label Area)
7. THAAD Contractor Logistics Support
8. Control Tower Crash/Fire Bldg. 300
9. Hangar Bldg. 384
10. THAAD Central Support Facility
11. MPS-25 (Queen 8)
12. MPS-25 (Queen 1)
13. SPS-67 (Queen 10)
14. Active Runway 16/34
15. Ordnance Magazine
16. Range Operations Area



Aerial north view



Range Operation Control Center (ROCC)

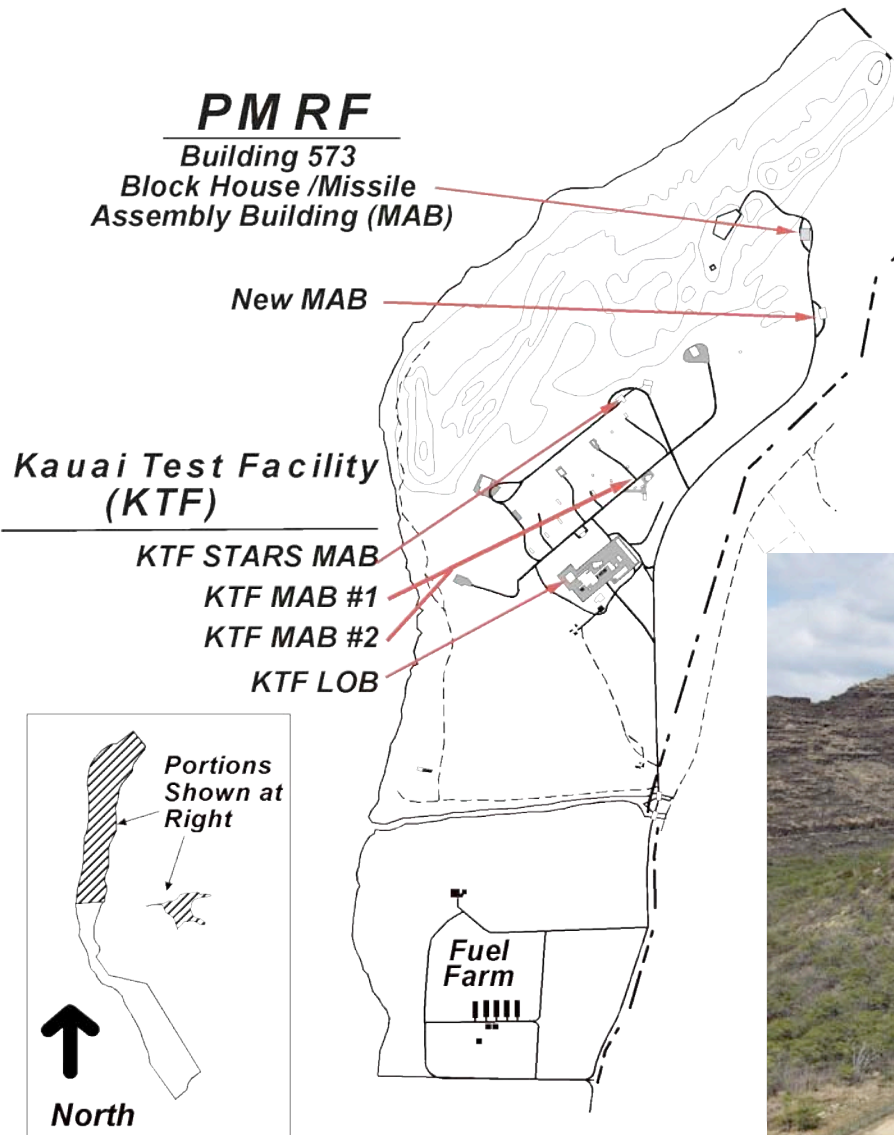


Kamokala Ridge

Kaumualii Highway



Ordnance Facilities





Ordnance SE

- Three Tractor/Trailers - Two 40 foot and one 30 foot
- One 5 Ton Stake Truck
- One 3/4 Ton 4x4 Pickup
- Two "K" Loaders

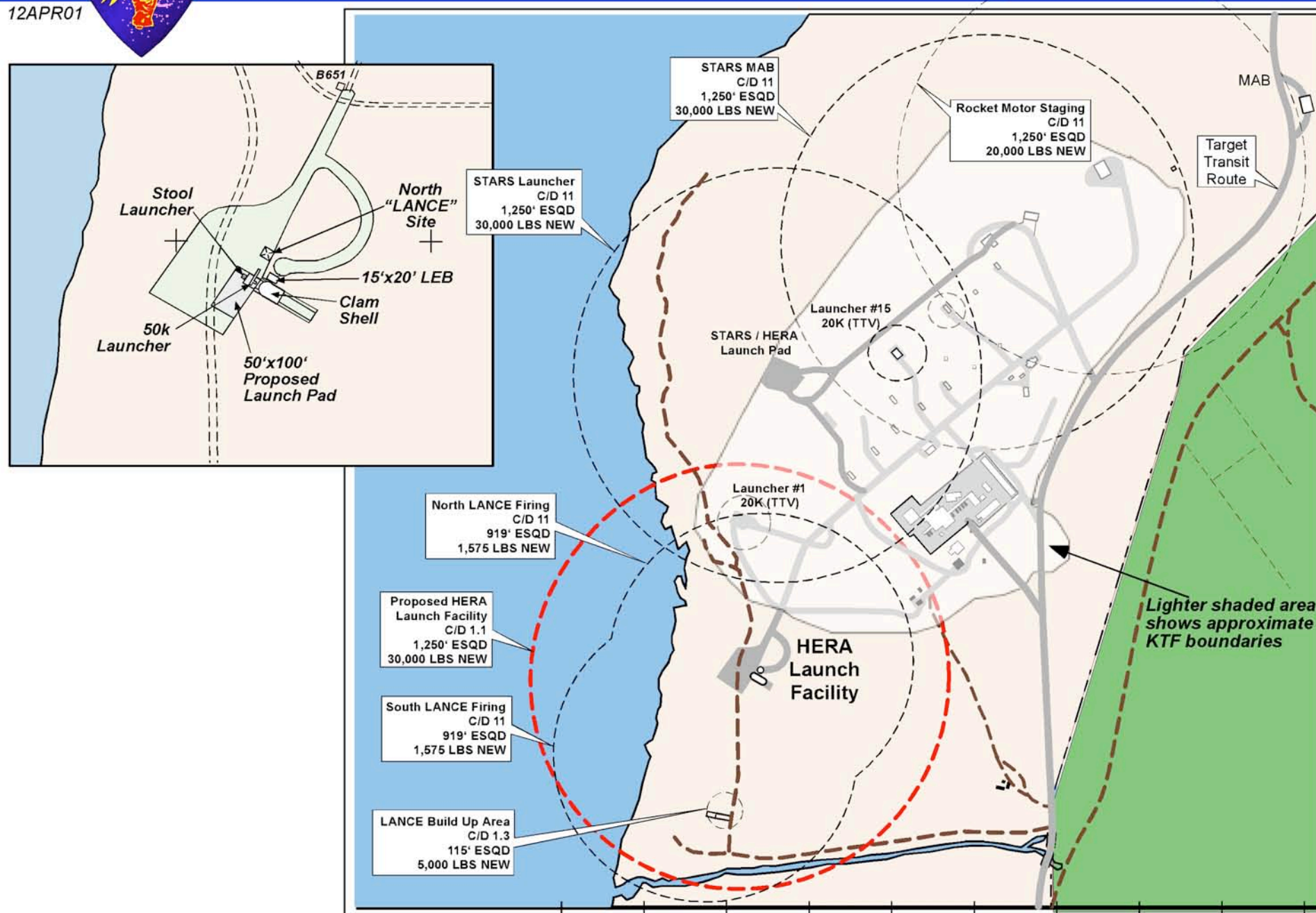




Launch Capability

1298

12APR01





Ordnance Facilities/Capabilities

Building Number	Type	Siting
573	Missile Assembly	2000 Lbs 1.1
590	Missile Assembly	30,000 Lbs. NEW CD 1.1
453	AQM 37 Missile Assembly	10,000 Lbs NEW CD 1.3
Red Label Area	Aircraft load/unload	30,000 NEW CD 1.1/CD 1.2.1/ CD 1.3
Magazine 1 thru 10	Cave-type Magazines	2 ea 10,000 Lbs NEW CD 1.1, 2 ea 20,000 Lbs NEW CD 1.1, 6 ea 30,000 Lbs NEW CD 1.1
Magazine 11/12	Box-Type Earth Covered	100,000 Lbs NEW CD 1.1 (Each)
Delete Tropical Test		
L-588 (MK 5 Launcher)	Terrier Missile Target/ Future reconfiguration to GQM 163 and/or Type D Target Threat	1000 Lbs. NEW CD 1.1
L-567 (HAD Launcher Removed)	Terrier Lynx Missile Target	1000 Lbs. NEW CD 1.1
L-572/ 584	BQM 34 Missile Target	105 Lbs. NEW CD 1.3
L-568/569/580/582	BQM 74 Missile Target	37 Lbs. NEW CD 1.3
L-583	GQM 163	4396 Lbs. NEW CD 1.3
Lance Launch Sites (Mobile)	Lance Mobile Launch Missile	199 Lbs CD 1.1 (Day of Launch) 5000 Lbs CD 1.3 (Not day of Launch)
Delete Lance Open Field Buildup Area		
Multi-Use Launch Pad/ South Launch Complex	Only Launcher is 50K Rail Launcher	30,000 Lbs CD 1.1
**Oxidizer Storage	Hazardous Material Storage (IRFNA)	CLASS III OXIDIZER, 400,000 LBS. NET



PMRF - An Important Economic Pillar

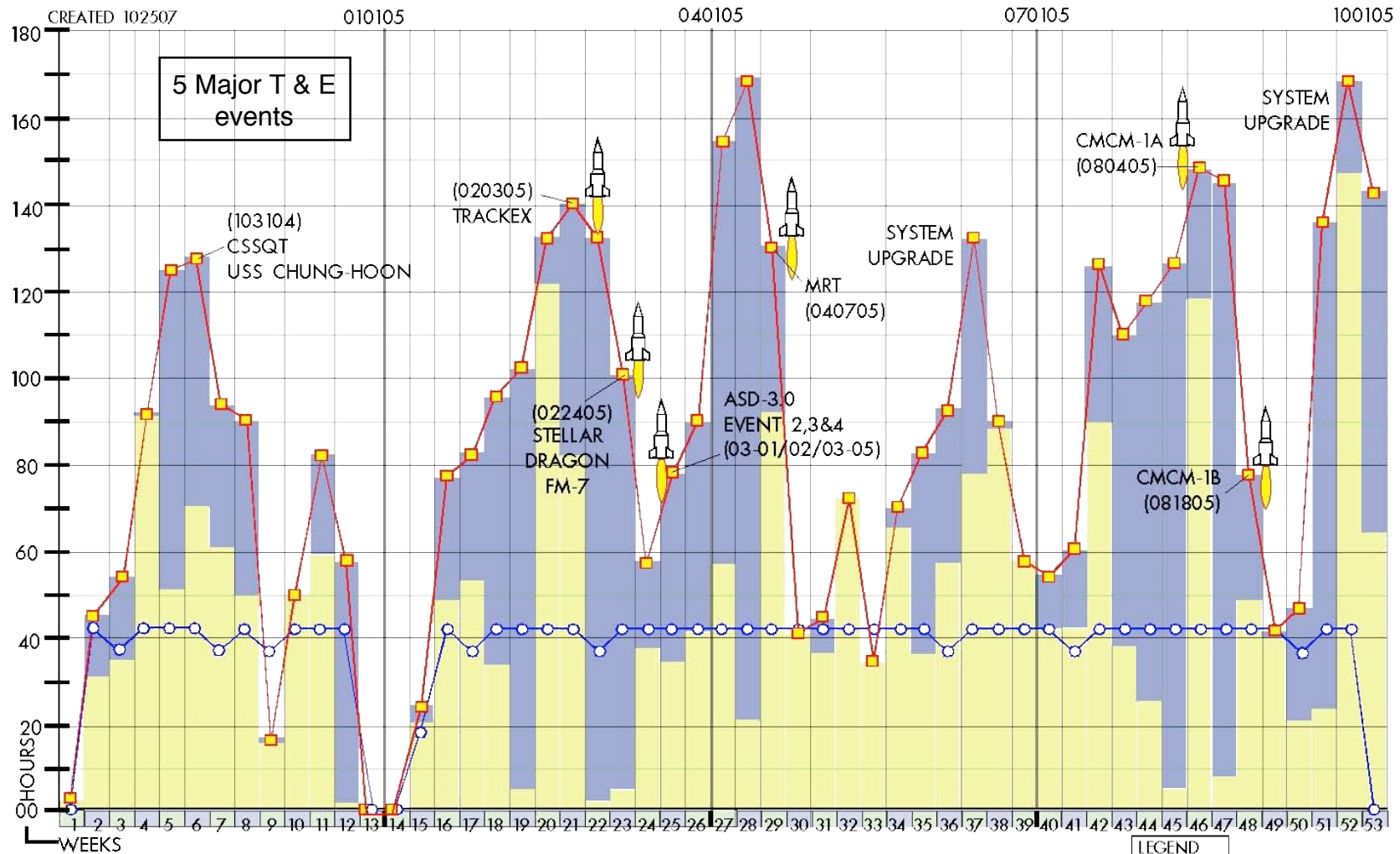
- PMRF is Kauai's #1 single largest high tech employer (120 Government Service and over 600 Contractor employees)
- Estimated \$135-plus million annual impact on the local economy
 - 25% of Kauai's Federal jobs**
 - 19% of all Federal, State, Local Government employees on Kauai**
 - Testing events bring surges of 400 - 600 visitors, injecting \$3-4 million each event to local businesses; 6-8 surge events per year

** 2006 State of Hawaii Data Book

“The State views high technology as an important driver in the diversification of Hawaii’s economy and one that provides quality, high paying jobs for Hawaii residents” -- KEDB



RANGE UTILIZATION (TOTAL ASSET HOURS) FY-2005

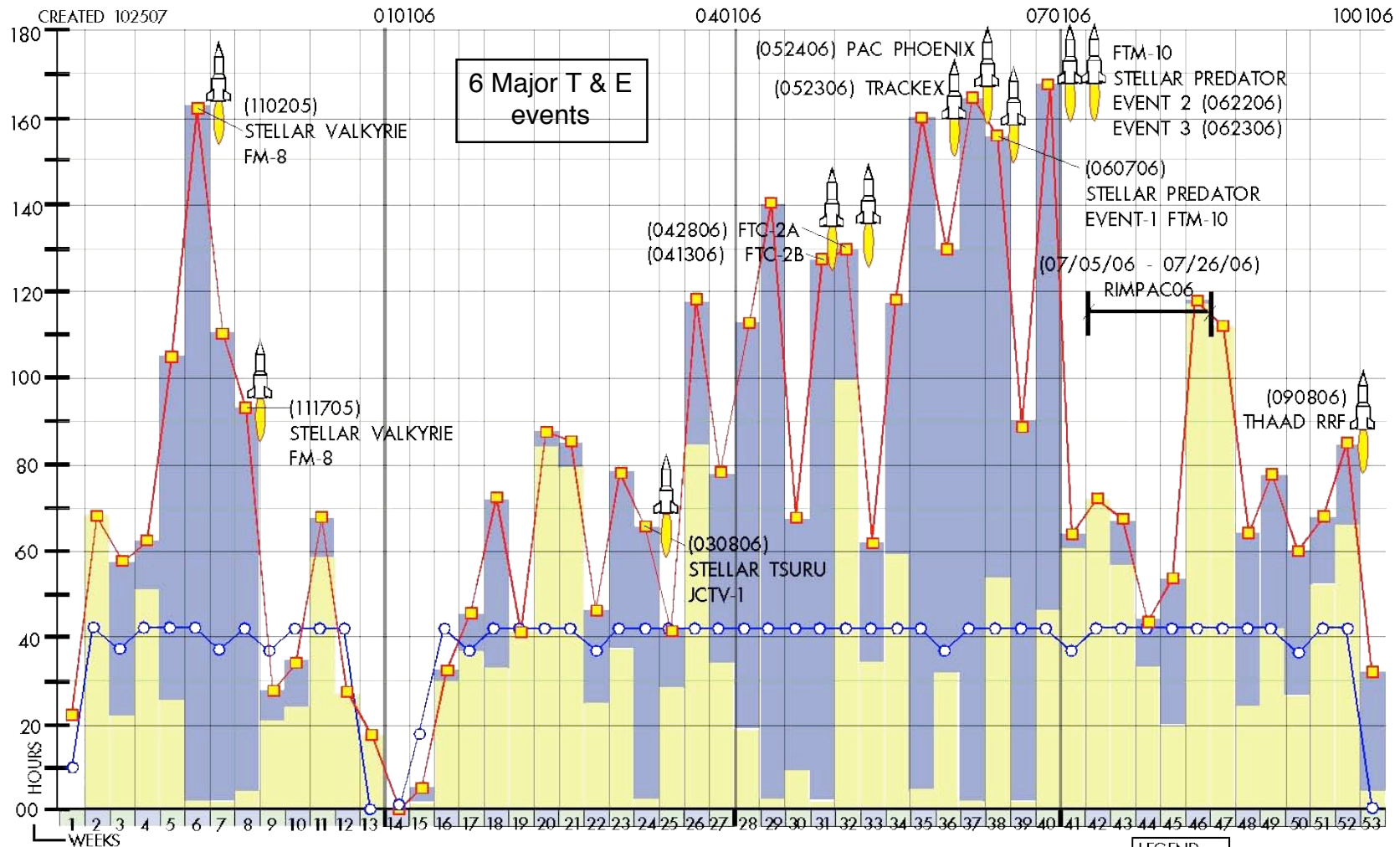


Utilization hours are for all hours of actual range use: If The range had 5 operations simultaneous from 8 a.m. - noon, this is considered a 4 hour range day. If the range had 1 operation from midnight to 2 a.m. and another from 8 a.m. - 4 p.m. this is a 10 hour day. Primary Operations Only. Activity type Other' excluded. Available hours are from 0730 to 1600 daily excluding weekends, Holidays and Stand-down days

- Colored bars represent % of total asset hours by activity type.

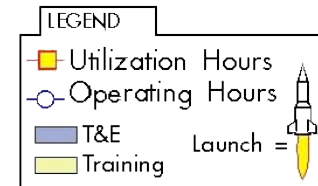


RANGE UTILIZATION (TOTAL ASSET HOURS) FY-2006



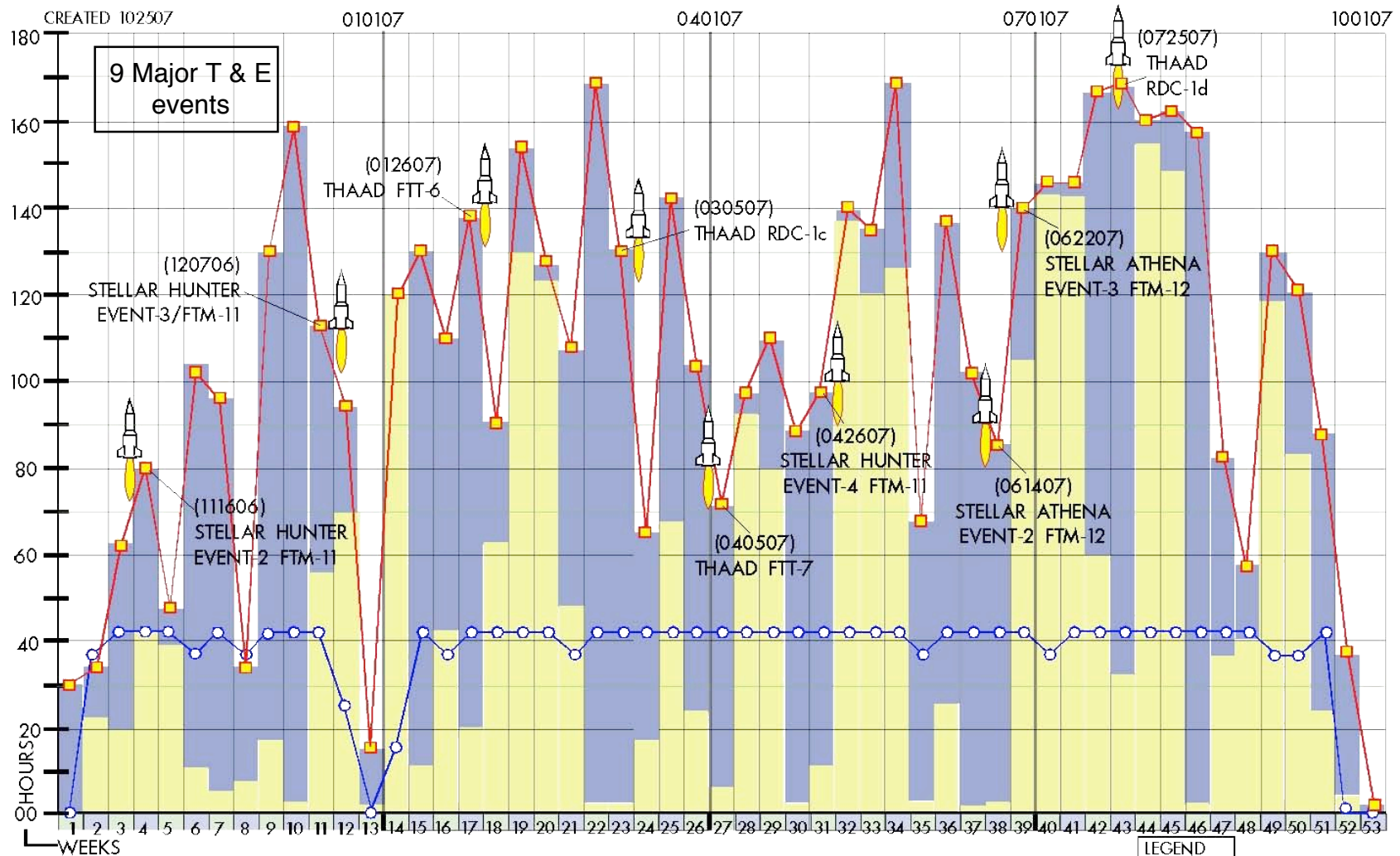
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- Colored bars represent % of total asset hours by activity type.





RANGE UTILIZATION (TOTAL ASSET HOURS) FY-2007



Utilization hours are for all hours of actual range use: If The range had 5 operations simultaneous from 8 a.m. - noon, this is considered a 4 hour range day. If the range had 1 operation from midnight to 2 a.m. and another from 8 a.m - 4 p.m. this is a 10 hour day. Primary Operations Only. Activity type Other' excluded. Available hours are from 0730 to 1600 daily excluding weekends, Holidays and Stand-down days

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